Regulatory and Market Effects of New Technologies:
Advanced Distribution Management Systems

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Imagination at work.

GE Energy Management

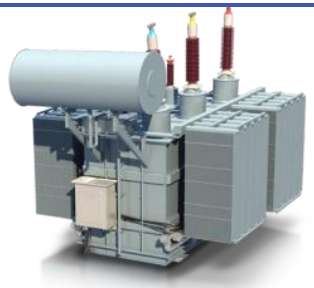
GE's electrification and automation business

We help our customers safely…

- ✓ Generate
- ✓ Transmit
- ✓ Distribute
- ✓ Convert
- ✓ Protect
- ✓ Automate
- ✓ Control
- ✓ Optimize

electricity

Motors & Generators



Power Delivery

Electrical equipment

Protection and control

Software

Variable frequency drive

Critical power

High performance automation

Services

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Challenges of a Modern Grid

Complexity

Our grid is becoming more complex... distributed generation (wind & solar) is being added, where power now flows in two directions

Visualization

Situational awareness and visibility is becoming more critical

Optimization

Growing pressure to optimize operations and extend life of aging infrastructure

Engagement

Empowered consumers are becoming energy producers and partners; shaping a different energy future

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Operational transformation

Today

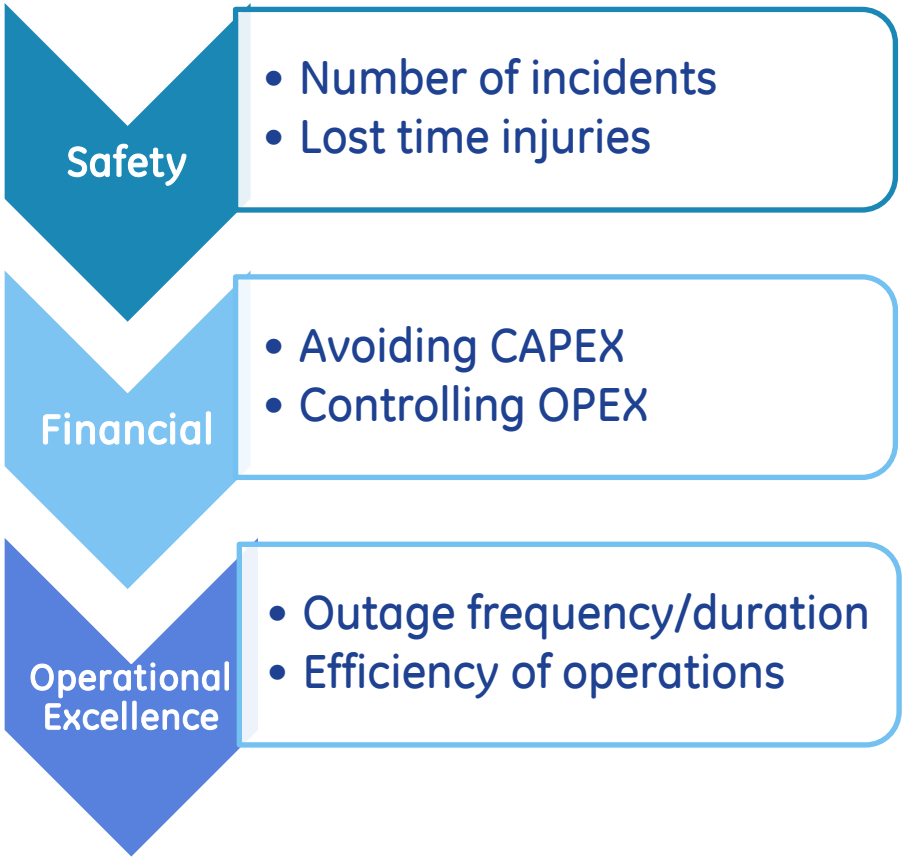
- Localized network knowledge
- Paper based processes
- Limited situational awareness
- Limited network model voltages
- Siloed business operations
- Reactive business processes

Tomorrow

- Centralized systems and processes
- Digital technology platforms
- Full network measurements
- Up to date operational model
- Knowledge transfer
- Proactive network optimization

Utility mandate - do more with less

Key Performance Indicators :



Utilities face the challenge of doing more with less

- At a minimum they must maintain current levels of safety, financial, and operational efficiency
- Network is becoming more complex with new devices and systems
- Customers are expecting more involvement

GE's response… PowerOn™ Advantage

Advanced Distribution Management System

Building on the best of GE's OMS & DMS solutions into a single, modular platform

- ✓ One Network Model…
  Integrated & Streamlined Operation
- ✓ One User Interface…
  Intuitive User Experience
- ✓ One System Database…
  Simplified System & Modular Design

Delivering increased **reliability**, **productivity**, and **efficiency**

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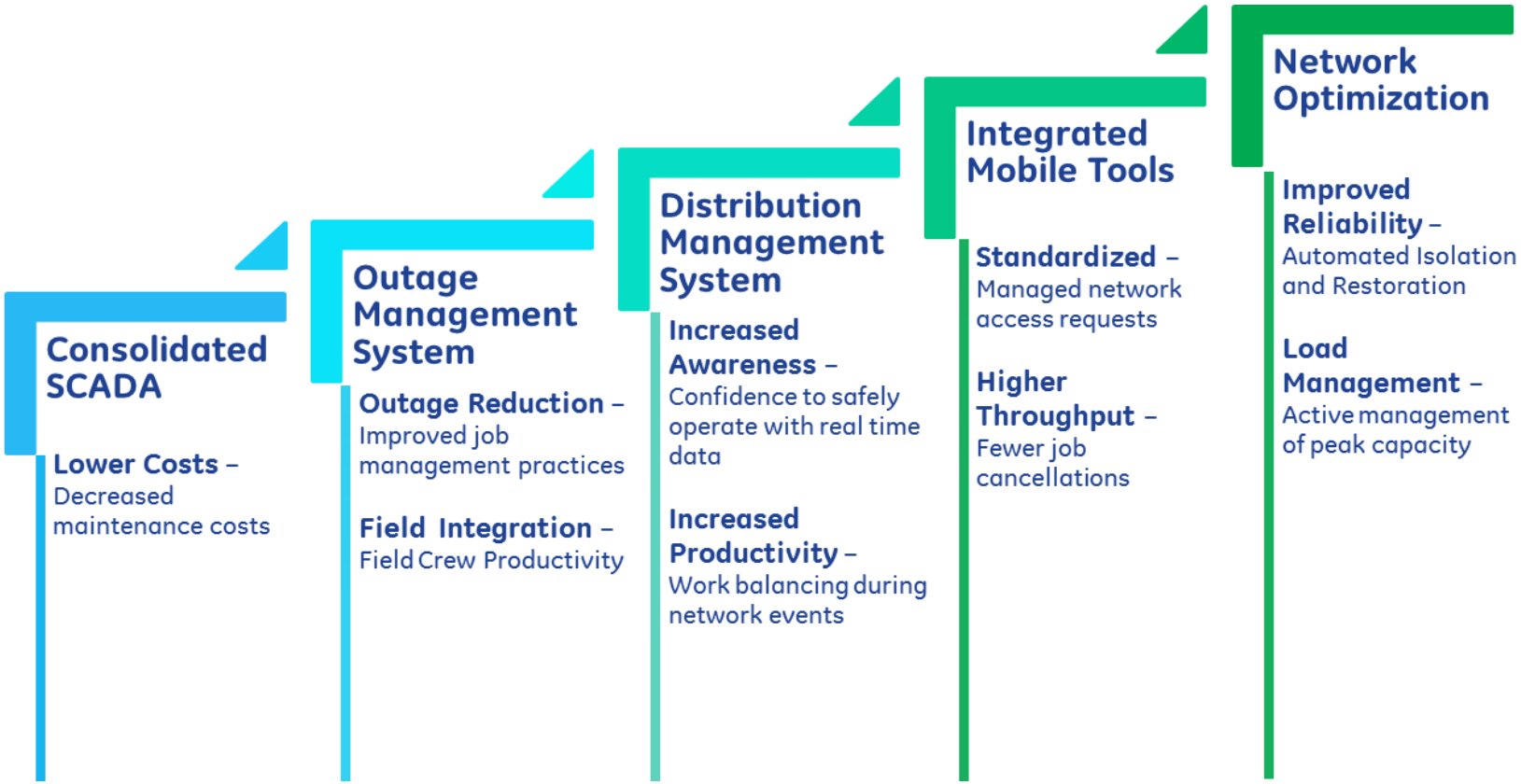
Moving utilities up the maturity curve



Power of One… ADMS business case

Outage Management

Area	Benefit	KPI
Customer Service Improvement	Better work management practices during emergency response	Man Hours
Outage Reduction	Connectivity model increase switching accuracy, prediction and reduce impact to affected customers	Avg Minutes Saved/Customer
Customer Service Improvement	Customer call time reduced while improving quality of communication	Mins in Queue
Data Quality Improvement	Increased outage accuracy will aid the responders (Field crews and Call taking)	Avg Minutes Saved/Customer
Service Cost Reduction	Lower call center costs (fewer agents, more automation)	OPEX $/yr Saved

Distribution Management

Area	Benefit	KPI
Productivity Improvement	Enables the virtual control room and workload balancing	Jobs per week
Reliability Improvement	Faster response to outage events with automated schemes and switching recommendations	Avg Minutes Saved/Customer
Asset Damage Reduction	Reduced risk of operational errors, asset damage, and interrupted supply – with knowledge mgmt	OPEX $/yr Saved
Network Investment Reduction	Increased network visibility to operate network closer to rating limitations	CAPEX $
Efficiency Improvement	Optimized performance of the full distribution network- not just individual substations	OPEX $/yr Saved

Considerations for State PUCs

- The function of the distribution grid is changing… new capabilities are needed to keep pace
- New capabilities may warrant new approach to “cost effectiveness” … net benefits vs. business case
- New technologies allow for transition from input-based to output-based regulation

Thank You